



Final Report to the Department of Energy Renewable Energy and Energy Efficiency

Awarded to: Agua Caliente Band of Cahuilla Indians

Award No. DE-EE0006945

Period of Performance: 08/01/2015 through 12/31/2015

Project Location: Agua Caliente Indian Reservation

Project Name: Heritage Plaza Parking Lot Improvements
Project: Solar PV Carport Installation

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Sponsoring Office: Energy Efficiency & Renewable Energy

Award Type: Deployment of Clean Energy and
Energy Efficiency on Indian Lands:
Tribal Building Clean Energy and Energy
Efficiency Retrofits (Clean Energy Systems)

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Contents

1. Project Overview.....	Error! Bookmark not defined.
2. Background	3
2.1 Project Location	3
2.2 Project Goals and Objectives	4
2.3 Project Benefits	4
3. Project Description.....	5
3.1 Project Outcomes	6
3.2 Photos and Graphs	6
4. Conclusions and Recommendations	10
4.1 Lessons Learned.....	10

1. Project Overview

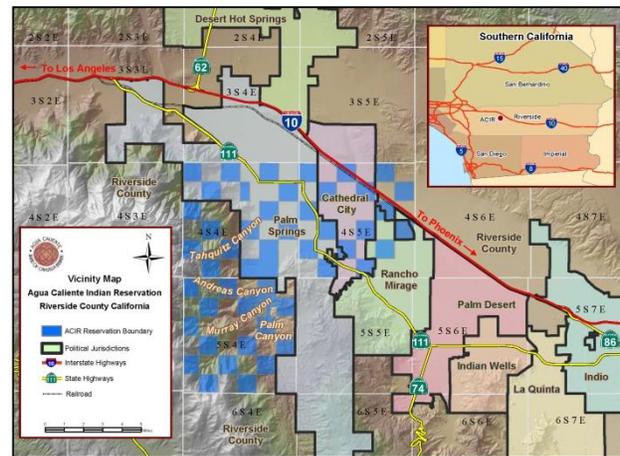
The Agua Caliente Band of Cahuilla Indians (ACBCI or the “Tribe”) installed a 79.95 kW solar photovoltaic (PV) system to offset the energy usage costs of the Tribal Education and Family Services offices located at the Tribe's Heritage Plaza office building, 901 Tahquitz Way, Palm Springs, CA, 92262 (the "Project"). The installation of the Solar PV system was part of the larger Heritage Plaza Parking Lot Improvements Project and mounted on the two southern carport shade structures.

The solar PV system will offset 99% of the approximately 115,000 kWh in electricity delivered annually by Southern California Edison (SCE) to the Tribal Education and Family Services offices at Heritage Plaza, reducing their annual energy costs from approximately \$22,000 annually to approximately \$200. The total cost of the proposed solar PV system is \$240,000.

2. Background

The Agua Caliente Indian Reservation (ACIR or “Reservation”), consisting of approximately 31,500 acres, is located in the Southern California desert area known as the Coachella Valley, approximately two hours east of Los Angeles. In the 1860s, the Federal Government transferred ownership of all the odd-numbered section of land in the Coachella Valley to the Southern Pacific Railroad. So when the Reservation was established by Executive Order in 1876, only the even-numbered sections were still available, thus creating the Reservation in a checkerboard pattern.

To encourage economic development, the Federal Government allocated the bulk of the Reservation land to the individual members of the Tribe in a process called “allotment” that lasted until 1959. That same year, and for the same purpose, Congress authorized only ACBCI and its members to lease their land for up to 99 years. However, under the Tribe’s Constitution, adopted in 1955, and federal law, the Tribe maintains primary control over the use and development of all land on the Reservation, including those parcels located within city boundaries.



2.1 Project Location

The Project is located at the Tribal Education and Family Services offices located at the Tribe’s Heritage Plaza commercial building, 901 Tahquitz Canyon Way, Palm Springs, CA, 92262. Heritage Plaza is a Tribally controlled building located on Allotted Indian Trust Land (Allotment 94A) in Section 14, Township 4 South, Range 4 East of the San Bernardino Meridian and the Agua Caliente Indian Reservation. The Tribe controls Heritage Plaza under a long-term lease that runs through 2043.

2.2 Project Goals and Objectives

The goal of the Project is to provide safe, reliable, affordable, and clean energy to the Tribal Education and Family Services offices located at Heritage Plaza. Installation of a 76.9kW SunEdison, or similar equivalent, solar PV system at Heritage Plaza will accomplish this goal by offsetting 99% of the approximately 115,000 kWh in electricity delivered annually by SCE to the Tribal Education and Family Services offices.

The overall vision of the Tribe embraces the continuous provision of exceptional quality and service to all team members (employees) and guests. The availability of safe, reliable, affordable, and clean energy is critical to achieving this vision. Thus the Tribe is committed to: 1) furthering its goals for self-sufficiency, self-determination and sustainable development through empowerment in the Tribe's energy interests; and 2) ensuring adequate supply and quality of energy to meet the Reservation's present and future needs, thereby contributing to the economies of the Agua Caliente Band of Cahuilla Indians and the surrounding Coachella Valley, consistent with the Tribe's dedication to a clean, safe, and secure environment. The ACBCI Strategic Energy Goals and Energy Objectives related to this Project are:

- To identify and act upon energy management alternatives, and/or viable energy efficiency, conservation, load management, and/or renewable generation projects that can facilitate economic and community development; and
- To identify and act upon opportunities for development of Tribal renewable energy resources that meet Tribal needs, consistent with the Tribe's mission to preserve resources, cultural heritage, traditional values, and beliefs.

2.3 Project Benefits

The proposed solar PV system would offset 99% of the approximately 115,000 kWh in electricity delivered annually by SCE to the Tribal Education and Family Services offices at Heritage Plaza, reducing their annual energy costs from approximately \$22,000 annually to approximately \$200. In addition to the money savings aspect of the Project, offsetting the annual delivery of 114,000 kWh of electricity to the site would reduce the following annual emissions attributable to the mix of fuel sources used in the region (WECC California) to generate that electricity: 49 lbs of Nitrogen Oxides (NO_x), 21 lbs of Sulphur Dioxide (SO₂), and over 37 tons of Carbon Dioxide (CO₂).¹ The total cost of solar PV system was \$240,000 with the Tribe's cost share at \$120,000. The Tribe will see a full return on its investment in as little as five years, which would then result in Tribal energy savings of nearly \$500,000 over the remaining 15 years of the minimum 20 year lifespan of the solar PV panels (assuming 3.5% annual increases in commercial electricity rates).

¹ Environmental Protection Agency. *Power Profiler*. http://oaspub.epa.gov/powpro/ept_pack.charts; accessed September 18, 2014.

3. Project Description

Installation of a 79.95 kW solar photovoltaic (PV) system to offset the energy usage costs of the Tribal Education and Family Services offices located at the Tribe's Heritage Plaza commercial building, 901 Tahquitz Canyon Way, Palm Springs, CA, 92262. Two hundred and ninety (290), Solar PV panels were mounted on the two southern carport shade structures being installed by the Tribe as part of the larger Heritage Plaza Parking Lot Improvements Project.

The proposed solar PV system will offset 99% of the approximately 115,000 kWh in electricity delivered annually by SCE to the Tribal Education and Family Services offices at Heritage Plaza, reducing their annual energy costs from approximately \$22,000 annually to approximately \$200. In addition to the money savings aspect of the Project, offsetting the delivery of 114,000 kWh of energy annually to the site would reduce the following annual emissions attributable to the mix of fuel sources used in the region (WECC California) to generate that electricity: 49 lbs of Nitrogen Oxides (NO_x), 21 lbs of Sulphur Dioxide (SO₂), and over 37 tons of Carbon Dioxide (CO₂).²

By providing to provide safe, reliable, affordable, and clean energy to the Tribal Education and Family Services offices, the Project would meet the following goals and objectives of the FOA:

- Promote tribal energy sufficiency and to spur increased deployment of clean energy and clean energy projects on Indian lands;
- Reduce energy costs and increase energy security for Indian tribes and tribal members;
- Support the Tribal Energy Program goal of stimulating 200MW of clean energy capacity or efficiencies on tribal lands by 2017; and
- Specifically result in 8MW of new clean energy generation.

The Project also meets the following Strategic Energy Goals and Energy Objectives of the Tribe:

- To identify and act upon energy management alternatives, and/or viable energy efficiency, conservation, load management, and/or renewable generation projects that can facilitate economic and community development; and
- To identify and act upon opportunities for development of Tribal renewable energy resources that meet Tribal needs, consistent with the Tribe's mission to preserve resources, cultural heritage, traditional values, and beliefs.

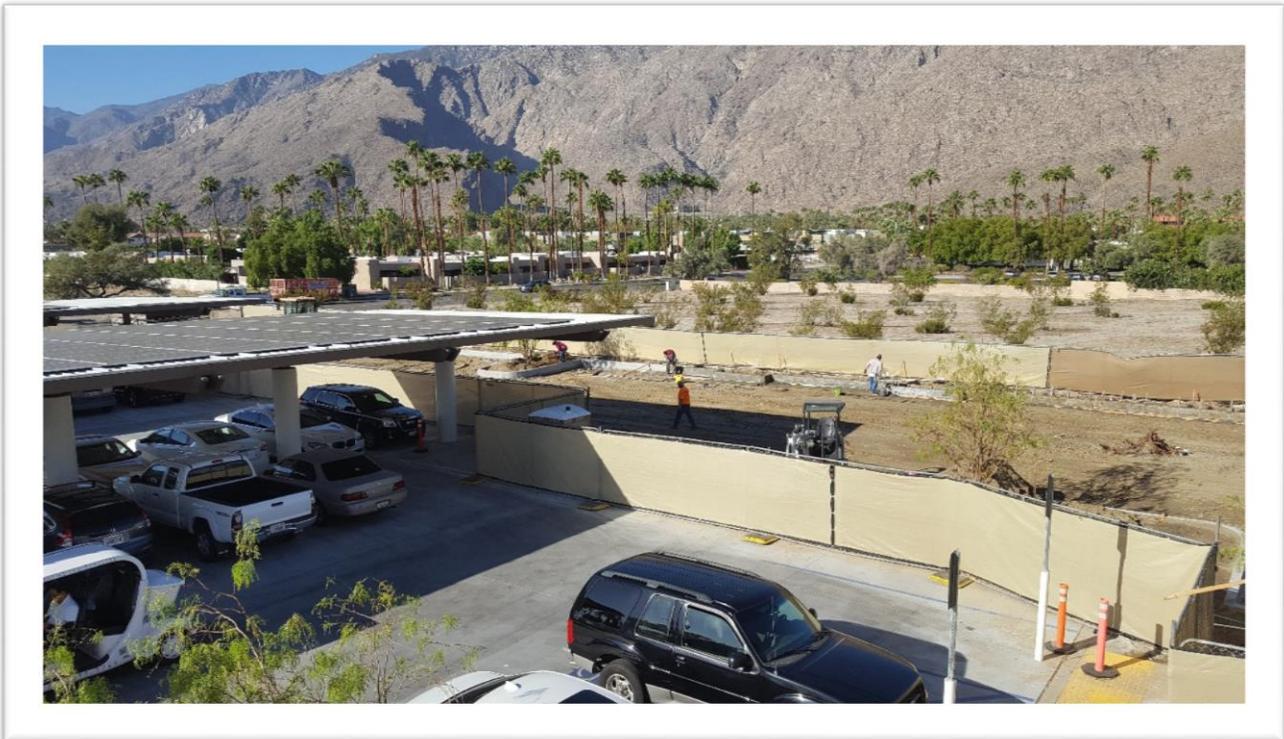
² Environmental Protection Agency. *Power Profiler*. http://oaspub.epa.gov/powpro/ept_pack.charts; accessed September 18, 2014.

3.1 Project Outcomes

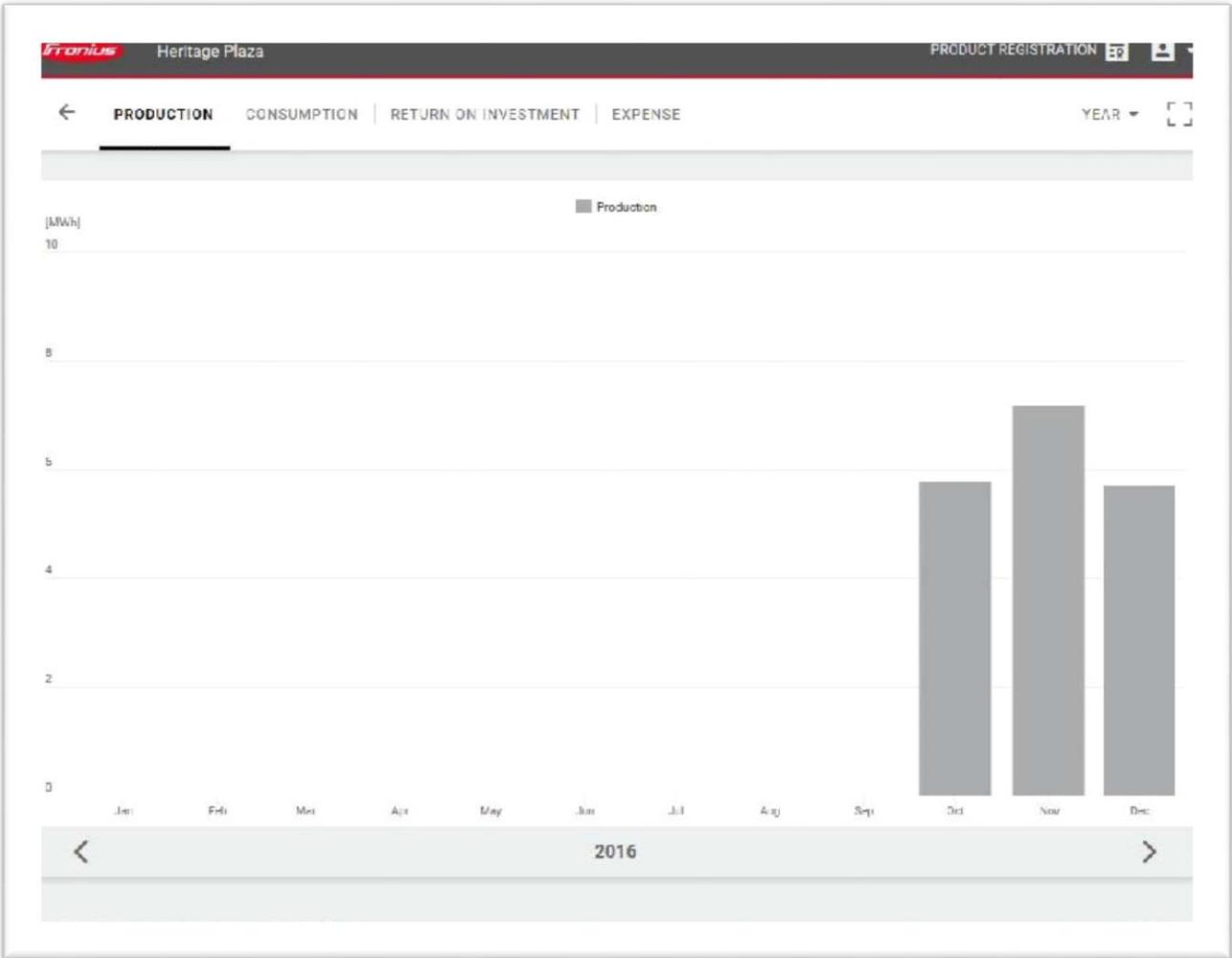
Based on SCE utility bills from 2012 and 2013, the Tribal Education and Family Services offices at Heritage Plaza use approximately 115,000 kWh of electricity annually. With the installation of the 79.95 kW PV system, 99% of this usage will be offset with clean energy produced on-site.

3.2 Photos and Graphs

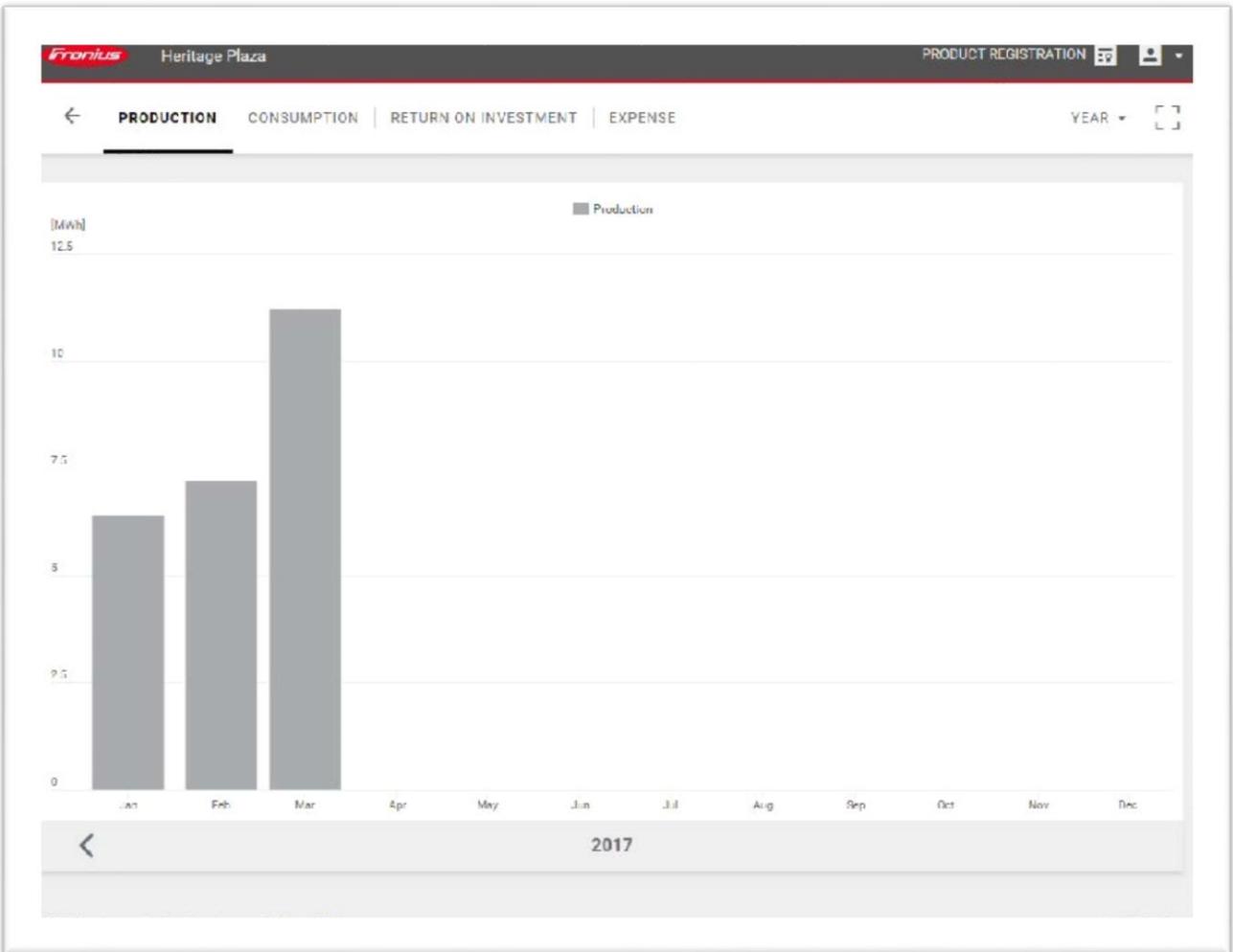








Graph of system which has produced 63.6 MWh from 10/10/16 – 3/30/17 with an estimated annual production of 121.1MWh



Graph of system which has produced 63.6 MWh from 10/10/16 – 3/30/17 with an estimated annual production of 121.1MWh

4. Conclusions and Recommendations

- City plan review and approval took a little longer than originally anticipated, which delayed the project approximately 2 months. However, the anticipated construction timeframe has been reduced by a month so there has been minimal impact to the overall project timeline.
- A challenge to note is that successfully entering into an interconnection agreement was delayed. SCE did not fully execute the agreement until the end of first quarter of 2017.

4.1 Lessons Learned

- Anticipate delays in successfully entering into an interconnection agreement with local power company.